What Is Claimed Is:

1. A method of processing a communications signal comprising:

forming a beam in a first direction;

roughly determining a direction and end frequency bandwidth of the communications signal to reduce a frequency bandwidth and a range of potential arrivals of said signal; and

then forming a beam in a second direction.

2. A method of processing a communications signal as recited in claim 1, wherein said first direction is orthogonal to said second direction.

3. A method of processing a communications signal as recited in claim 1, further comprising the step of generating a first direction error signal, a second direction error signal, a timing error signal and a frequency error signal.

4. A method of processing a communications signal as recited in claim 3, further comprising the step of receiving said first direction error signal and said second direction error signal in a two-dimensional beam forming circuit.

5. A method of processing a communications signal as recited in claim 1, further comprising the step of detecting symbols in the signal.

6. A method of processing a communications signal as recited in claim 5, further comprising the step of demodulating the signal.

7. A method of processing a communications signal, comprising:

receiving the signal using nx4 receive elements, wherein n is an integer at least equal to 1, so that each consecutive sample may be offset by 90° to avoid cosine and sine multiplications; and

forming a beam in a first direction using a fast Fourier transform in a one-dimensional digital beam forming circuit.

8. A method of processing a communications signal as recited in claim 7, further comprising the step of reducing the bandwidth of the received signal.

9. A method of processing a communications signal as recited in claim 7, wherein forming the beam in a first direction forms columnar fan beams.

10. A method of processing a communications signal as recited in claim 9, further comprising the step of applying a correction factor $\Delta\theta_x$ and a frequency correction Δf.

11. A method of processing a communications signal as recited in claim 10,further comprising the steps of correcting changes in timing and performing finite impulse response and decimation filtering.

12. A method of processing a communications signal as recited in claim 11,further comprising the step of forming the beams in a second direction.

13. A method of processing a communications signal as recited in claim 12,wherein the second direction is orthogonal to the first direction.

14. A method of processing a communications signal as recited in claim 13, further comprising the steps of correcting at least one of timing errors, phase errors, frequency errors and tracking errors.

15. A method of processing a communications signal as recited in claim 14, further comprising the steps of detecting at least one of transmission symbols and characters and performing one or more of demodulation operations to recover data.

16. A method of processing a communications signal as recited in claim 15, wherein the demodulation operations comprise signal synchronization, quadrature demodulation, matched filtering, deinterleaving, trellis decoding and unscrambling.

17. A method of processing a communications signal as recited in claim 16, further comprising the steps of formatting and handing over the recovered data to a terminal.

18. A signal processing circuit comprising:

a receive digital signal processing circuit comprising:

a receive digital beam forming circuit coupled to nx4 receive elements, wherein n is an integer at least equal to 1, and

a transmit digital signal processing circuit comprising:

a transmit digital beam forming circuit coupled to nx4 transmit elements, wherein n is an integer at least equal to 1.

19. A signal processing circuit as recited in claim 18, wherein the receive elements are partitioned into subarrays of four elements each.

20. A signal processing circuit as recited in claim 18, wherein the receive digital beam forming circuit comprises two one-dimensional digital beam forming circuits.

21. A signal processing circuit as recited in claim 18, wherein the transmit digital beam forming circuit comprises a two-dimensional beam forming circuit.

22. A signal processing circuit as recited in claim 18, wherein the receive digital signal processing circuit further comprises means for filtering.

23. A signal processing circuit as recited in claim 18, wherein the receive digital signal processing circuit is coupled to means for controlling power, aiding orientation and velocity.

24. A signal processing circuit as recited in claim 18, wherein the transmit digital signal processing circuit is coupled to means for controlling power.

25. A signal processing circuit as recited in claim 18,wherein the transmit digital beam forming circuit is coupled to the receive digital signal processing circuit for receiving correction factors.

26. A signal processing circuit as recited in claim 18, wherein each of the transmit elements has an associated latch, digital-to analog converter, local oscillator/mixer, beam band pass filter, and amplifier.

27. A signal processing circuit as recited in claim 18, said transmit digital signal processing circuit further comprising an encoder/interleave circuit coupled to each of the transmit elements.

28. A signal processing circuit as recited in claim 27,wherein each transmit element has a cosine lookup table and a sine lookup table for ofsetting each transmit element to represent a phase shift.

29. A signal processing circuit as recited in claim 28,said transmit digital signal processing circuit further comprising a summer for summing up converted in-phase and quadrature values.

30. A signal processing circuit as recited in claim 29,said transmit digital signal processing circuit further comprising a single digital-to-analog converter and band pass filter.

31. A signal processing circuit comprising:

a receive digital signal processing circuit comprising:

a receive digital beam forming circuit coupled to an array of 4x4 receive elements, wherein, and

a transmit digital signal processing circuit comprising:

a transmit digital beam forming circuit coupled to an array of 4x4 transmit element.